

What is claimed is:

1. A photographing assist device comprising:

a rotor made of a member supported rotatably; and

a camera fixing part for mounting a camera on said rotor,

5 being arranged away from a center of rotation of said rotor,

said camera fixing part holding said camera so that a shooting direction of said camera is generally perpendicular to a plane of rotation of said rotor.

2. The photographing assist device according to claim 1,

10 wherein:

said rotor is made of a generally annular member with the center of the annular shape as the center of rotation; and

said camera fixing part is arranged on said generally annular member in a position near an outer periphery thereof, and when said rotor is rotated, puts said mounted camera into a circular movement with a distance from the center of rotation as a radius.

3. A photographing assist device comprising:

a rotor made of a member supported rotatably; and

20 an imaging unit arranged in a position away from a center of rotation of said rotor to shoot a subject from the position,

a shooting direction of said imaging unit being maintained generally perpendicular to a plane of rotation of said rotor.

25 4. The photographing assist device according to claim 3,

wherein:

said rotor is made of a generally annular member with the center of the annular shape as the center of rotation; and

said imaging unit is arranged on said generally annular member in a position near an outer periphery thereof, and when said rotor is rotated, makes a circular movement with a distance from the center of rotation as a radius.

5 5. The photographing assist device according to claim 1, further comprising an angle detecting unit for measuring said rotor for an angle of rotation.

6. The photographing assist device according to claim 3, further comprising an angle detecting unit for measuring said rotor for an angle of rotation.

7. An image processing method comprising:
15 performing continuous shooting by using a camera rotatably supported by a predetermined member at timings of different angles of rotation while said member is rotated, with a direction generally perpendicular to a plane of rotation as a shooting direction;

20 accepting a plurality of images obtained by said continuous shooting;

extracting images of objects to be parallel with each other from said plurality of images, respectively;

25 detecting the angles of rotation from tilts of said plurality of images, respectively, with reference to the

images of said objects; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

8. An image processing method comprising:

5 performing continuous shooting by using a camera rotatably supported by a predetermined member at timings of different angles of rotation while said member is rotated, with a direction generally perpendicular to a plane of rotation as a shooting direction;

10 detecting the angles of rotation at respective shooting timings during said continuous shooting;

accepting a plurality of images obtained by said continuous shooting;

15 acquiring data on the angles of rotation detected of said plurality of images, respectively; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

9. The image processing method according to claim 6, wherein:

20 said predetermined member is a generally annular rotor with its circular surface as the plane of rotation;

said camera is supported in a position near an outer periphery of said rotor, and when said rotor is rotated, makes a circular movement with a distance from the center of

25 rotation as a radius; and

in the performing continuous shooting, said plurality of images are shot from a plurality of positions in an orbit of said circular movement.

10. The image processing method according to claim 7,

5 wherein:

said predetermined member is a generally annular rotor with its circular surface as the plane of rotation;

said camera is supported in a position near an outer periphery of said rotor, and when said rotor is rotated, makes
10 a circular movement with a distance from the center of rotation as a radius; and

in the performing continuous shooting, said plurality of images are shot from a plurality of positions in an orbit of said circular movement.

15 11. An image processing apparatus comprising:

an image input unit for accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions of different angles of rotation, with a direction generally perpendicular to a plane of rotation of
20 said member as a shooting direction;

an extracting unit for extracting images of objects to be parallel with each other from said plurality of images, respectively;

a tilt detecting unit for detecting the angles of
25 rotation from tilts of said plurality of images, respectively,

with reference to the images of said objects; and

a rotation processing unit for relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

5 12. An image processing apparatus comprising:

an image input unit for accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions of different angles of rotation, with a direction generally perpendicular to a plane of rotation of
10 said member as a shooting direction;

an angle input unit for acquiring data on the angles of rotation; and

a rotation processing unit for relatively rotating said plurality of images based on the angles of rotation to obtain
15 images parallel with each other.

13. The image processing apparatus according to claim 9, wherein:

said predetermined member is a generally annular rotor with its circular surface as the plane of rotation;

20 said camera is supported in a position near an outer periphery of said rotor, and when said rotor is rotated, makes a circular movement with a distance from the center of rotation as a radius; and

said image input unit accepts said plurality of images
25 shot from a plurality of positions in an orbit of said

circular movement.

14. The image processing apparatus according to claim 10, wherein:

said predetermined member is a generally annular rotor
5 with its circular surface as the plane of rotation;

said camera is supported in a position near an outer periphery of said rotor, and when said rotor is rotated, makes a circular movement with a distance from the center of rotation as a radius; and

10 said image input unit accepts said plurality of images shot from a plurality of positions in an orbit of said circular movement.

15. The image processing apparatus according to claim 9, further comprising:

15 a distance calculating unit for calculating a distance between a plurality of shooting positions based on the radius of rotation of said camera and a difference between the angles of rotation;

a parallax detecting unit for detecting a parallax
20 between corresponding points from said plurality of images; and

a distance measuring unit for measuring a distance to a subject based on the parallax and the distance between said shooting positions.

25 16. The image processing apparatus according to claim 10,

further comprising:

a distance calculating unit for calculating a distance between a plurality of shooting positions based on the radius of rotation of said camera and a difference between the angles of rotation;

a parallax detecting unit for detecting a parallax between corresponding points from said plurality of images; and

a distance measuring unit for measuring a distance to a subject based on the parallax and the distance between said shooting positions.

17. The image processing apparatus according to claim 9, further comprising an interpolation unit for interpolating said plurality of images based on the angles of rotation and the radius of rotation of said camera, thereby obtaining an image to be shot from a desired point of view.

18. The image processing apparatus according to claim 10, further comprising an interpolation unit for interpolating said plurality of images based on the angles of rotation and the radius of rotation of said camera, thereby obtaining an image to be shot from a desired point of view.

19. A computer program for making a computer exercise functions of:

accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions

of different angles of rotation, with a direction generally perpendicular to a plane of rotation of said member as a shooting direction;

extracting images of objects to be parallel with each other from said plurality of images, respectively;

detecting the angles of rotation from tilts of said plurality of images, respectively, with reference to the images of said objects; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

20. A computer program for making a computer exercise functions of:

accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions of different angles of rotation, with a direction generally perpendicular to a plane of rotation of said member as a shooting direction;

acquiring data on the angles of rotation; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

21. A computer-readable recording medium containing a program for making a computer exercise functions of:

accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions of different angles of rotation, with a direction generally

perpendicular to a plane of rotation of said member as a shooting direction;

extracting images of objects to be horizontal references from said plurality of images, respectively;

5 detecting the angles of rotation from tilts of said plurality of images, respectively, with reference to the images of said objects; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

10 22. A computer-readable recording medium containing a program for making a computer exercise functions of:

accepting a plurality of images shot by using a camera rotatably supported by a predetermined member from positions of different angles of rotation, with a direction generally
15 perpendicular to a plane of rotation of said member as a shooting direction;

acquiring data on the angles of rotation; and

relatively rotating said plurality of images based on the angles of rotation to obtain images parallel with each other.

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